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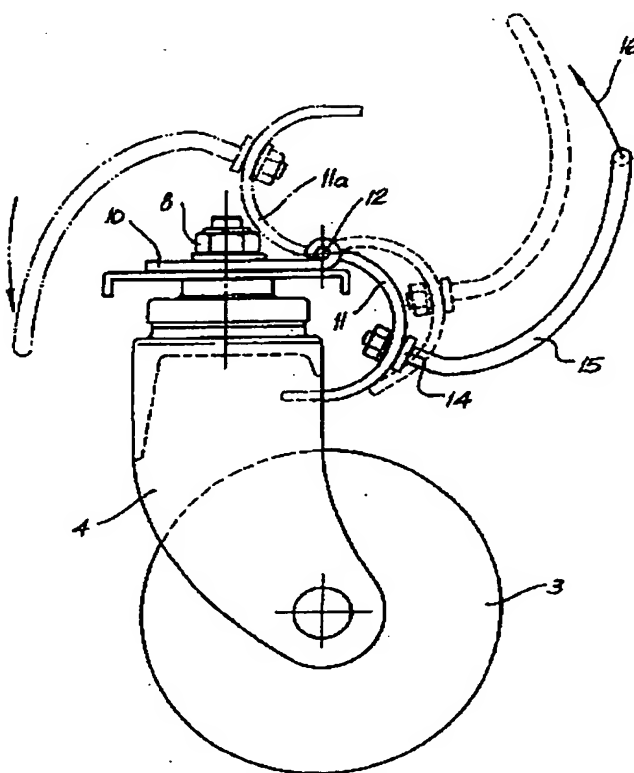
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(54) Title: CASTOR LOCKING DEVICE

## (57) Abstract

A device for arresting the swivelling movement of a castor (3), especially those on the front of shopping trolleys, comprises a plate (10) secured to the base of the trolley, and a tongue adapted to pivot (12) between first and second positions (11, 11A). In the first position, the tongue is engaged between the arms of the fork member (4) to prevent swivelling movement of the castor (3). In the second position (11A), the tongue is disengaged from between the arms to permit swivelling movement of the castor (3). The tongue may be automatically disengaged by contact of another trolley with an arm (15) connected to the tongue.



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## CASTOR LOCKING DEVICE

### BACKGROUND OF THE INVENTION

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The present invention relates to a device for arresting the swivelling movement of a castor, which is particularly useful, but not limited, to a castor(s) provided on a shopping trolley.

10

The present invention relates to such a device which may easily be adapted to existing trolleys, or be incorporated into newly manufactured trolleys.

### DESCRIPTION OF THE PRIOR ART

15

It is commonly known to persons who have pushed a trolley such as a shopping trolley, an airport trolley, a baby stroller, or any other trolley like apparatus, that the wheels quite commonly do not move in the desired direction. Such trolleys usually have four castors mounted on the bottom of the apparatus, each able to be swivelled to point in a desired direction of movement,

20

The front wheels of such trolleys are prone to swivel into a direction transverse to the desired direction of movement such that it is often very difficult to get the trolley to move in a forward direction.

25

Various attempts have been made to produce lockable castor devices whereby this swivelling movement of one or more castors on a trolley is arrested. Such prior art devices include the following.

30

AU-A-60830/80 by N A Fisher discloses a lockable castor, particularly for use with a shopping trolley. The castor is provided with a latching mechanism 24 which is pivotally attached about bolt 10, which has a pin 29 which can locate in a notch 22 which is provided in annulus 21, to thereby prevent swivelling movement of the castor.

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AU 541238 by Manfred Neumann discloses a device to prevent swivelling of a castor, particularly for use on a moveable hospital bed. The device operates by actuation of rod 8, which operates cam 7 to thereby move a locking pin 11 downwards, such that a head 17 engages with matching teeth of a pawl 18, to form the corresponding locking member in hollow 16 of fork 2, such that swivelling movement of fork 2 is arrested. It also acts as a brake element to prevent rotation of wheel 1.

AU 561639 by Edward Robson discloses an anti-swivel lockable castor, particularly for use on a baby stroller. It utilises a movable locking member 36 secured about a post 12 between a first position whereby rotation of said rotatable member is prevented by a slot interferingly engaging the rotatable member, and a second position whereby rotation of said rotatable member is permitted.

AU-A-17214/92 by Geoffrey Grant discloses a locking mechanism for releasably locking a wheel of a shopping trolley. The device comprises a yoke 3, which is provided with a ring attachment 7 secured thereto. The ring 7 is provided with an indent which corresponds with a spring biased ball 9. The spring biased ball 9 is able to be moved out against the bias spring 11 so that the wheel can be swivelled.

All of the aforementioned prior art devices are somewhat complex in design, difficult to manufacture, and are prone to breakage, such that they are not considered suitable for attachment to shopping trolleys or the like, in a readily useable and/or cost effective manner.

## SUMMARY OF THE INVENTION

The present invention seeks to provide a device for arresting the swivelling movement of a castor, particularly, but not limited to, being attachable to a shopping trolley or the like, whereby a simple, inexpensive, and easy to use device is enabled.

In one broad form, the present invention provides a device for arresting the swivelling movement of a castor, said castor being of the type having a fork-type attachment means, an upper end of said attachment means being rotatable relative to a

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base portion of a trolley or the like, and, a lower end of said attachment means having an axle between arms of said fork-like attachment means to which said castor is attached, said device comprising:

- support means, secured to said base of said trolley or the like; and,
- 5 engagement means, comprising a tongue-like member pivotally attached to said support means, and adapted to be displaced between first and second positions;
- whereby,
- in said first position, said tongue is engaged between said arms of said fork thereby preventing swivelling movement of said castor relative to said base; and,
- 10 in a second position, said tongue is disengaged from between said arms of said fork to thereby permit swivelling movement of said castor relative to said base.

Preferably, said device is manufactured integrally with said trolley or the like.

- 15 Alternatively, but also preferably, said device is adapted to said trolley or the like after manufacture.

- In a preferred form of the invention, but not being limited thereto, said trolley or the like is a shopping trolley.
- 20

In a preferred form of the invention, said device is attached to the front wheels of said trolley or the like.

- Preferably, a connecting bar connects said engagement means to an engagement
- 25 means on an adjacent device, such that said devices operate simultaneously.

In a preferred embodiment, said device may be manually operated by an operator moving said engagement means.

- 30 In an alternatively preferred embodiment, said device may be operated from a remote position by means of a tension cable connected to a switch means.

In this latter form of the invention, said switch means is provided on a handle

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portion of said trolley or the like.

In yet a further preferred form of the invention, said device may be operated by a disengaging means, to automatically disengage said tongue from between said arms of  
5 said fork, when said trolley is stored or stacked with other trolley(s), said disengaging means being operated by contact from said other trolley(s).

### BRIEF DESCRIPTION OF THE DRAWINGS

10 The present invention will become more fully understood from the following detailed description of a preferred but non-limiting embodiment thereof, described in connection with the accompanying drawings wherein:

FIG 1 illustrates an isometric view of a trolley and castors thereon in accordance with the present invention;

15 FIG 2 shows an elevational view of a castor having the device of the present invention thereon;

FIG 3 illustrates an isometric view of the device of the present invention; and,

FIG 4 shows a pair of trolleys being 'stacked', automatically releasing the tongues from between the arms;

20 FIG 5 shows a preferred embodiment, comprising interconnected tongues, for ease of fixture; and,

FIG 6 shows an enlarged view of FIG 5.

### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

25

Throughout the drawings, like numerals will be utilised to identify similar features, except where expressly otherwise indicated.

As shown in Fig 1, a trolley, which may be a shopping trolley, a luggage trolley,  
30 or any other form of trolley such as a baby stroller or the like, is generally designated by the numeral 1, and is provided with four castors 2 thereon, two at the front and two at the rear of the trolley.

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The rear castors 2 of the trolley 1 shown in Fig 1 are of a conventional type whereby swivelling movement is permitted about the length of the trolley, whilst the front castors are of a similar type, but are provided with arresting devices in accordance with the present invention thereon, operable such that those front castors are able to be locked  
5 into a forward moving position of the trolley. Details of the locking arrangement are shown in Figs 2 and 3.

As best illustrated in Fig 3, the castors or wheels 3 are attached to a leg or base portion of the trolley by a bolt 8, via a U-shaped member or a fork-like member 4. The  
10 fork like member 4, has a pair of arms 5 and 6 spanning either side of the wheel or castor 3 and supporting the wheel or castor 3 by an axle 7 connected therebetween. Consequently, rotatable movement in the direction shown by arrow 9 (see Fig 3) is permitted.

15 The device of the present invention may be interconnected by the bolt 8 to the known trolley system by attachment of a support means 10, which is shown as a base plate or the like. Alternatively some form of support means may be simply welded or bolted or the like to the leg or bottom of the trolley.

20 The device of the present invention is also provided with engagement means, which comprises a tongue like member pivotally attached to the support means by a pivot 12, such that it is adapted to be displaced between the first position shown by numeral 11, and a second position shown by numeral 11a. In the first position, the engagement means fits between the arms 5 and 6 of the fork member 4, such that rotational movement  
25 in the direction of arrows 9 is prohibited. In a second position, as shown by numeral 11a, when the engagement means 11 moves in the direction of arrow 13, the tongue is disengaged from between the arms 5 and 6, such that pre-swivelling movement of the wheel or castor 3 in the direction of arrow 9 is prohibited. It will be appreciated that such an arrangement may easily be adapted to existing trolleys or may be manufactured  
30 integrally with the trolley.

It will also be appreciated that while a particularly useful application of the device is for a shopping trolley, such devices may likewise be adapted to a luggage trolley, a

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baby stroller or any other type of wheeled device.

It will also be appreciated that whilst the device of the present invention may be adapted to any of the wheels of the trolley, the inventor has realised that it is particularly  
5 useful to be adapted to the front wheels only of a shopping trolley, which would then facilitate easier movement of the shopping trolley.

A connecting bar illustrated by the numeral 14 may additionally be provided to interconnect two such devices provided on two adjacent front or rear wheels of the  
10 trolley, such that, by operation of one of the devices, the interconnected device simultaneously moves. This may be effected by manual operation by an operator, for instance, by hand or foot movement, or, in a more sophisticated version of the invention, the device may be operated from a remote position by means of a suitable tension cable connected to a switch, provided, for example, on the handle portion of the trolley.

15

An alternatively preferred version of the invention provides a disengaging means  
15, connected to the tongue 11, such that, by movement of the disengaging means 15 in the direction of arrow 16, the tongue 11 is disengaged from the arms of the fork member 4. The disengaging means 15 may be automatically raised by contact with another  
20 trolley, and particularly the front bar of another trolley, as best illustrated in Fig. 4. Therefore, when the trolleys are provided in a "stacked position", the wheels would automatically be provided in the disengaged position. This is particularly useful in the "stacked position", since the "stack" of trolleys would then be easily manoeuvrable. It should be noted that, in a preferred embodiment, the disengaging means 15 may be  
25 moved by contact with another trolley to a position whereby, when the other trolley is brought out of contact, the tongue automatically falls back into the engaged position.

A preferred embodiment of the invention, for attaching to existing trolleys is shown in Fig. 5, and detailed in Fig. 6. These figures illustrate how the two tongues 11  
30 are attached to a connecting bar 17 and bolted above the front wheels of the trolley. Such an arrangement facilitates easier connection such that alignment is easier. This also means that the two tongues 11 will be provided into an out of the engaged position simultaneously.



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It will be appreciated that various alterations or modifications to the invention will become apparent to persons skilled in the art. All such variations and modifications should be considered to fall within the scope of the invention as broadly described hereinbefore and as claimed hereinafter.

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THE CLAIMS

1. A device for arresting the swivelling movement of a castor, said castor being of the type having a fork-type attachment means, an upper end of said attachment means  
5 being rotatable relative to a base portion of a trolley or the like, and, a lower end of said attachment means having an axle between arms of said fork-like attachment means to which said castor is attached, said device comprising:  
support means, secured to said base of said trolley or the like; and,  
engagement means, comprising a tongue-like member pivotally attached to said  
10 support means, and adapted to be displaced between first and second positions;  
whereby,  
in said first position, said tongue is engaged between said arms of said fork, thereby preventing swivelling movement of said castor relative to said base; and,  
in a second position, said tongue is disengaged from between said arms of said  
15 fork, to thereby permit swivelling movement of said castor relative to said base.
2. A device as claimed in claim 1, whereby said device is manufactured integrally with said trolley or the like.
- 20 3. A device as claimed in claim 1, whereby said device is adapted to said trolley or the like after manufacture.
4. A device as claimed in any one of claims 1 to 3 wherein said trolley or the like is a shopping trolley.  
25
5. A device as claimed in any one of claims 1 to 4, wherein said device is attached to the front wheels of said trolley or the like.
6. A device as claimed in any one of claims 1 to 5 wherein a connecting bar  
30 connects said engagement means to an engagement means on an adjacent device, such that said devices operate simultaneously.

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7. A device as claimed in any one of claims 1 to 6, wherein said device may be manually operated by an operator moving said engagement means.

8. A device as claimed in any one of claims 1 to 6, wherein said device may be  
5 operated from a remote position by means of a tension cable connected to a switch means.

9. A device as claimed in claim 8, whereby said switch means is provided on a handle portion of said trolley or the like.

10

10. A device as claimed in any one of claims 1 to 6, wherein said device may be operated by a disengaging means, to automatically disengage said tongue from between said arms of said fork, when said trolley is stored or stacked with other trolley(s), said disengaging means being operated by contact from said other trolley(s).

15

11. A device for arresting the swivelling movement of a castor substantially as herein described with reference to the accompanying drawings.

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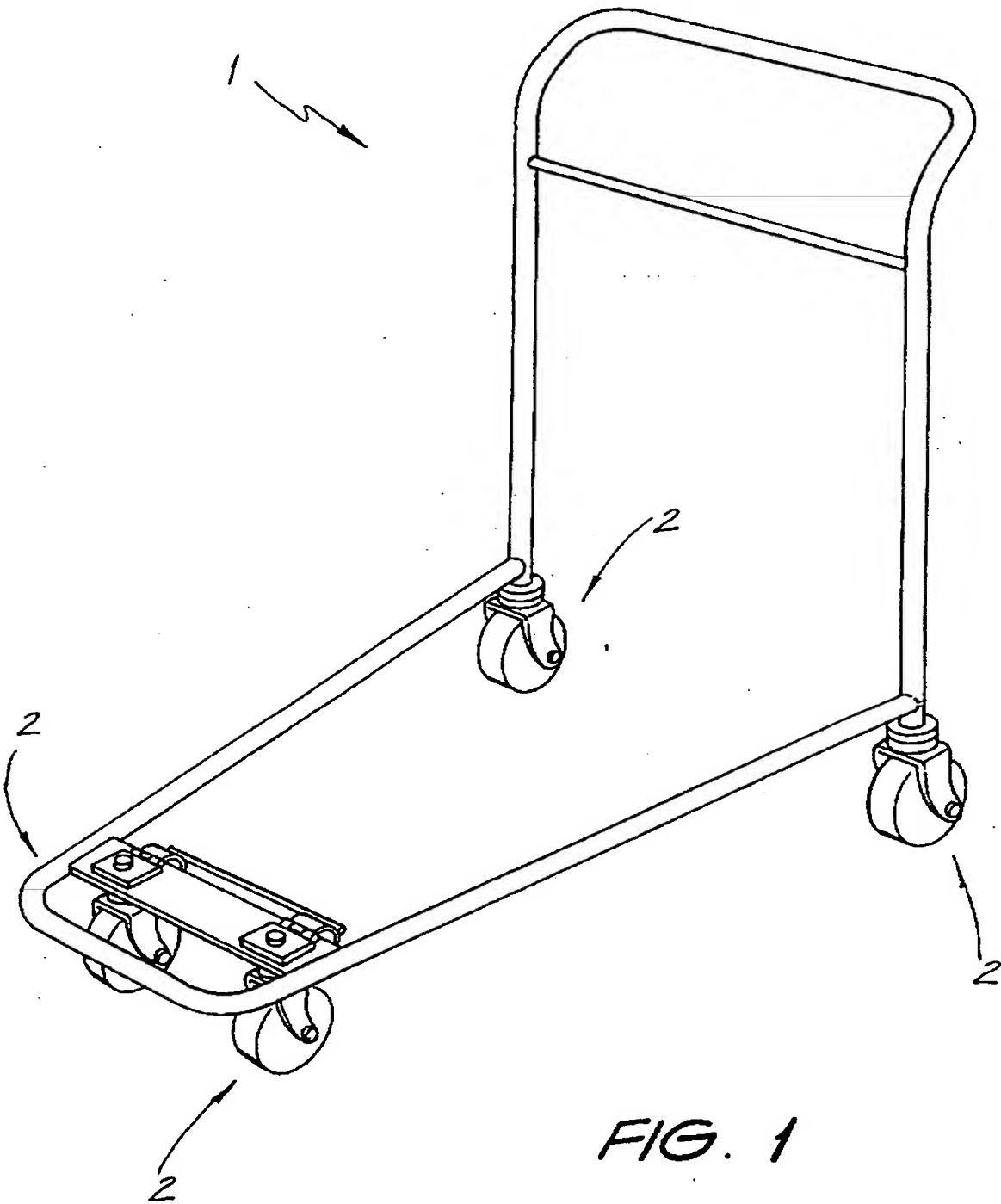


FIG. 1

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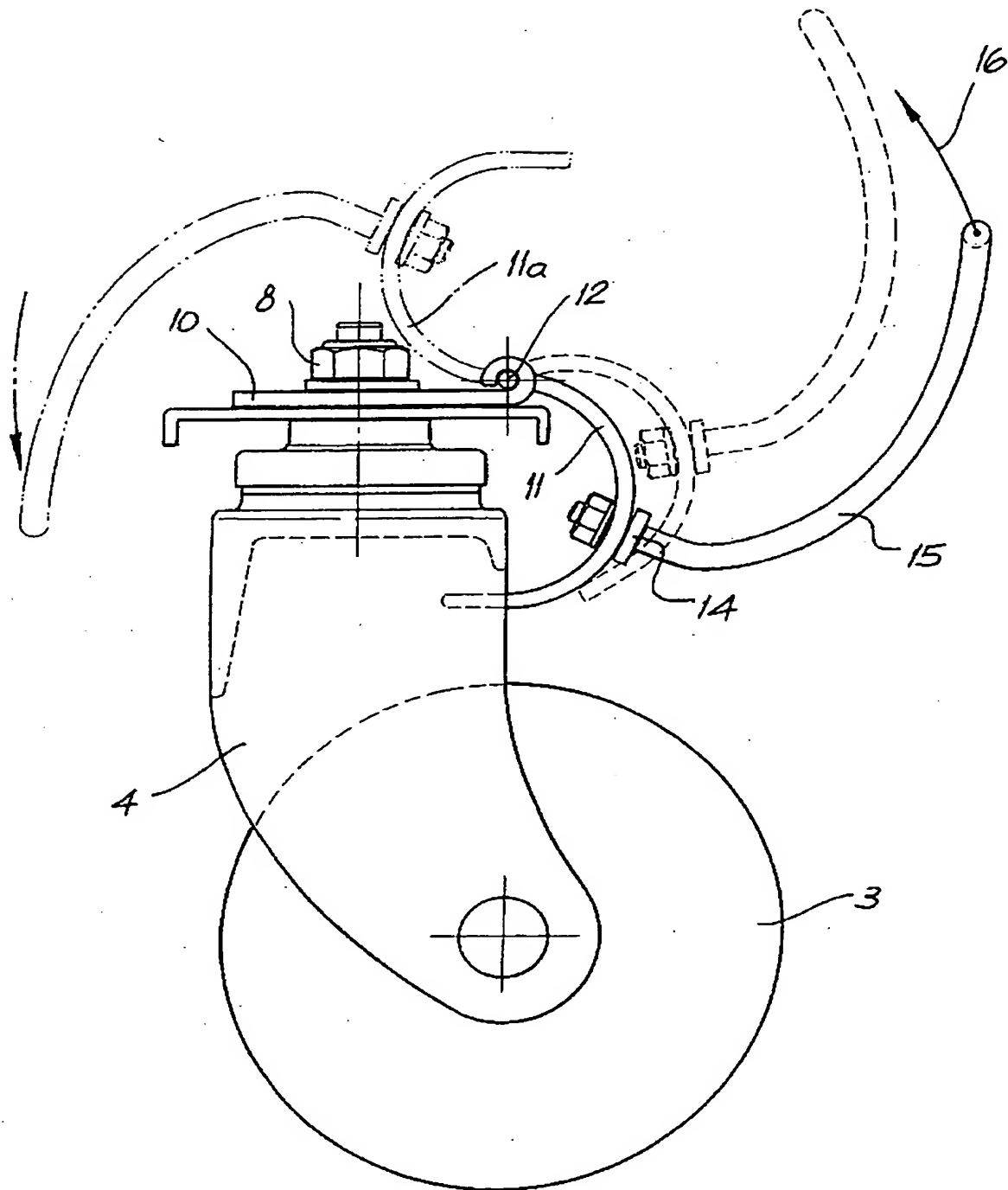
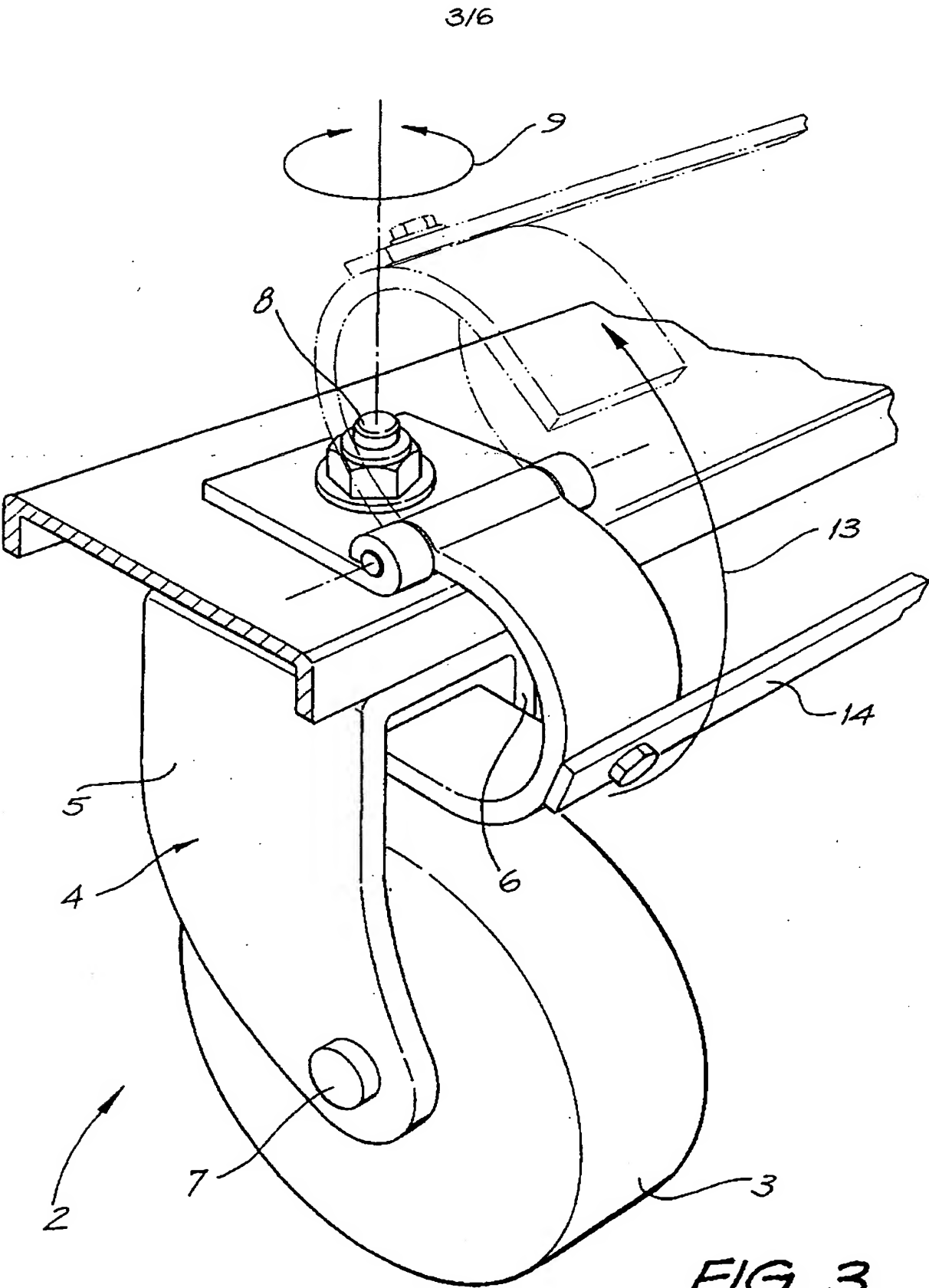


FIG. 2

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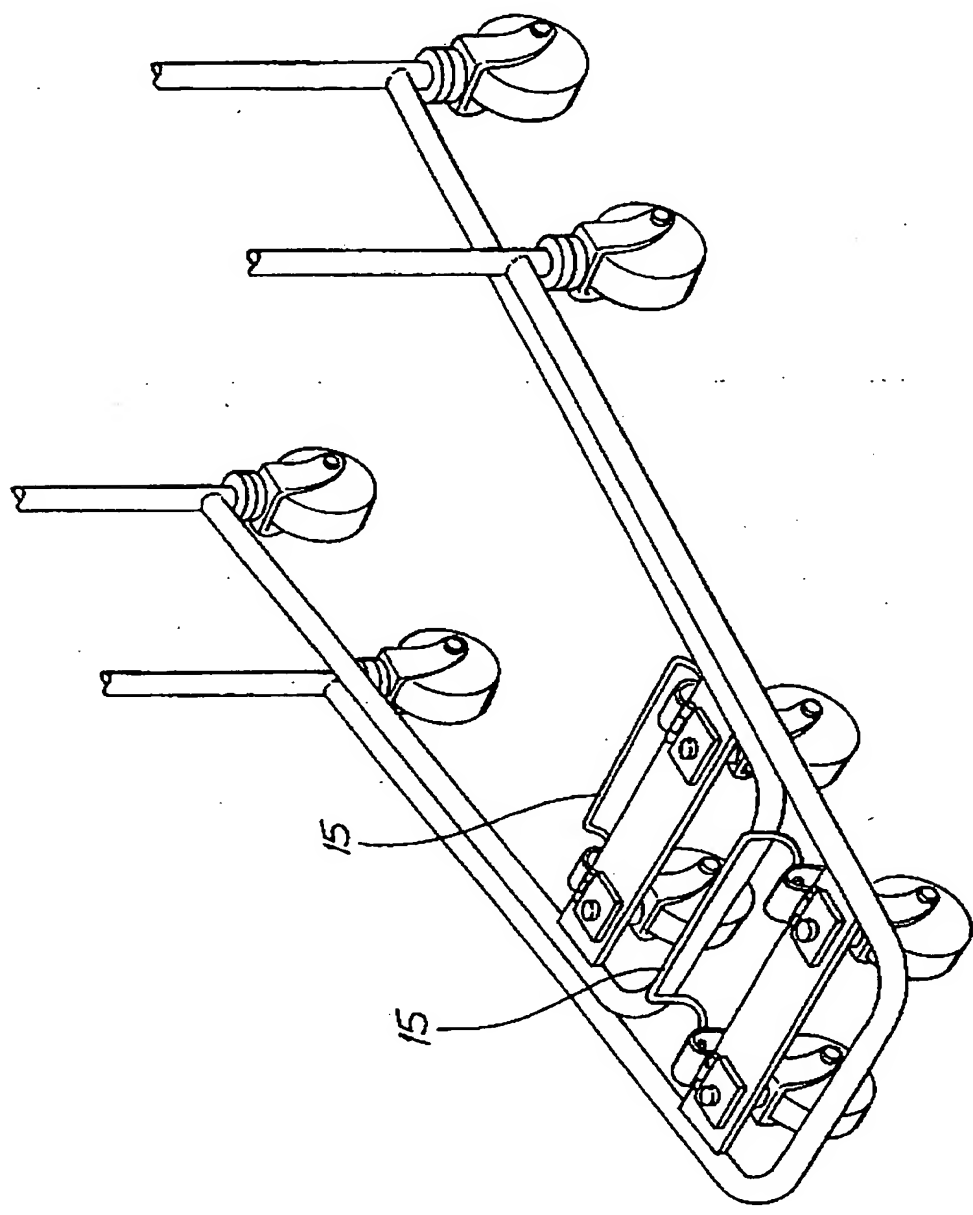


FIG. 4

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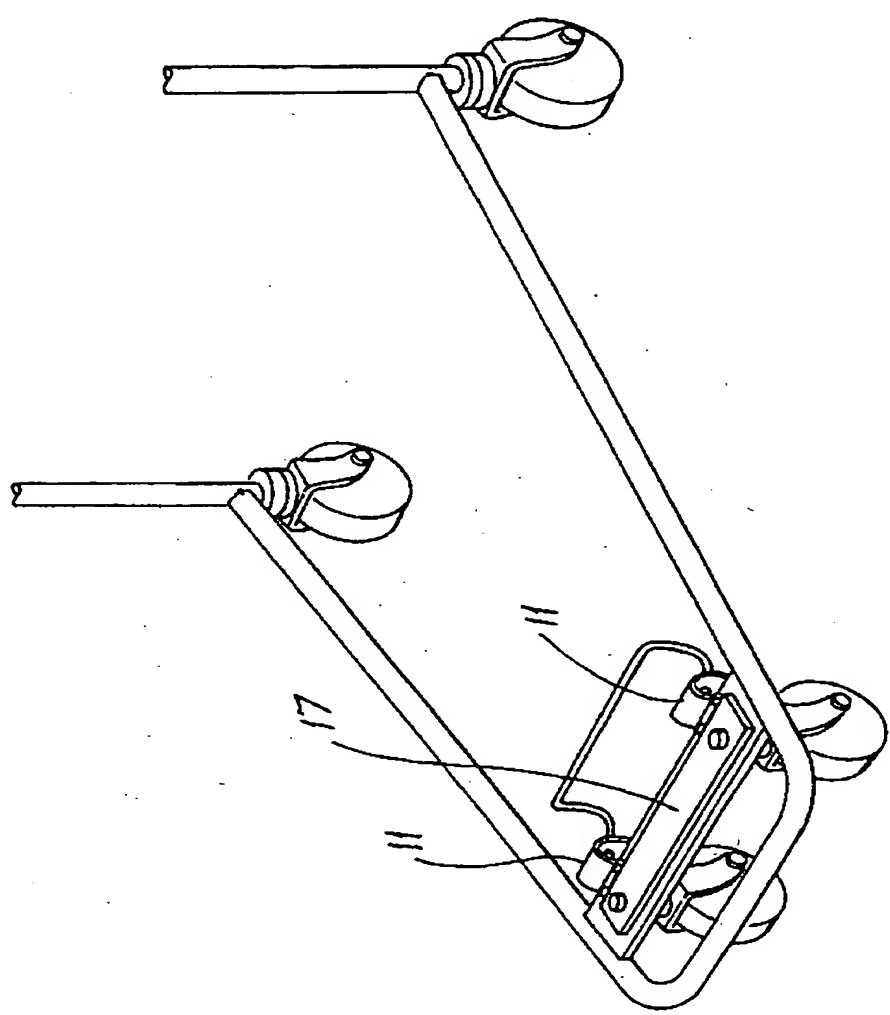


FIG. 5



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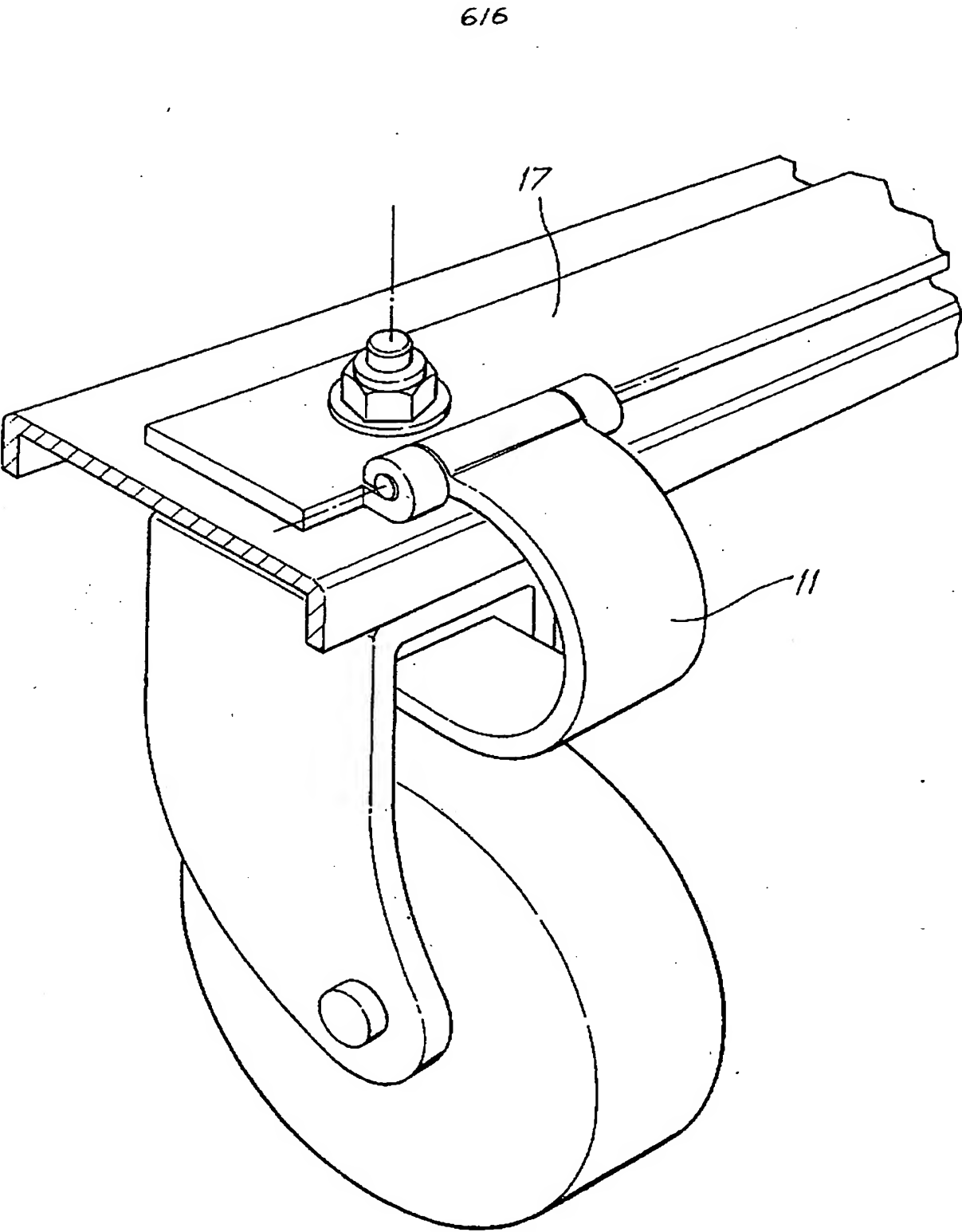


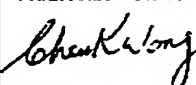
FIG. 6

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## INTERNATIONAL SEARCH REPORT

International application No.

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> Int. Cl. <sup>6</sup> B60B 33/02  According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>  Minimum documentation searched (classification system followed by classification symbols) IPC B60B 33/02  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC as above  Electronic data base consulted during the international search (name of data base, and where practicable, search terms used) DERWENT				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
<b>Category*</b>	<b>Citation of document, with indication, where appropriate, of the relevant passages</b>	<b>Relevant to Claim No.</b>		
X Y	DE,A,3546043 (ALBERT SCHULTE SOHNE GmbH & CO) 25 June 1987 (25.06.87) figures 1-9	1-3, 7 4-6, 10		
X Y	DE,A,3525443 (TENTE-ROLLEN GmbH & CO) 22 January 1987 (22.01.87) line 67, column 4 - line 27, column 5	1-3, 7 4-6, 10		
Y	EP,A,403265 (CLARES EQUIPMENT LTD) 19 December 1990 (19.12.90) line 52, column 4 - line 56, column 6 and figures 1-3	4-6, 10		
A	NL,A, 7613360 (ALKAS B.V.) 5 June 1978 (05.06.78) drawing figures			
<div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.         </div> <div> <input checked="" type="checkbox"/> See patent family annex.         </div> </div>				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">           * Special categories of cited documents :            "A" document defining the general state of the art which is not considered to be of particular relevance            "E" earlier document but published on or after the international filing date            "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)            "O" document referring to an oral disclosure, use, exhibition or other means            "P" document published prior to the international filing date but later than the priority date claimed         </td> <td style="width: 50%; vertical-align: top;">           "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle of theory underlying the invention            "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone            "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art            "&amp;" document member of the same patent family         </td> </tr> </table>			* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle of theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
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Date of the actual completion of the international search 27 October 1994 (27.10.94)		Date of mailing of the international search report 8 Nov 1994 (8.11.94)		
Name and mailing address of the ISA/AU AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION PO BOX 200 WODEN ACT 2606 AUSTRALIA  Facsimile No. 06 2853929		Authorized officer <div style="text-align: center;">   <b>CM WYATT</b> </div> Telephone No. (06) 2832538		

## INTERNATIONAL SEARCH REPORT

International application No.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate of the relevant passages	Relevant to Claim No.
A	US,A,3142086 (THOMAS) 28 July 1964 (28.07.64) lines 4-30, column 5 and figures 2, 3 and 6	
A	US,A,4847945 (SCHWARTZ et al) 18 July 1989 (18.07.89) lines 53-68, column 3 and figures 2 and 4	
A	US,A,4922574 (HEILGENTHAL et al) 8 May 1990 (08.05.90) abstract	
A	EP,A,23432 (FISHER) 4 February 1981 (04.02.81) line 11, page 4 - line 29, page 6 and figures 1-6	

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EP	403265	GB	2234945		
US	4922574	CA	2015147	EP	394643 JP 2296504
EP	23432	AU	60830/80		

END OF ANNEX